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Forest Inventory and Analysis at the Northeastern Research Station

Tracking the Diverse
and Dynamic Forests
in the Northeastern States



United States
Department of
Agriculture

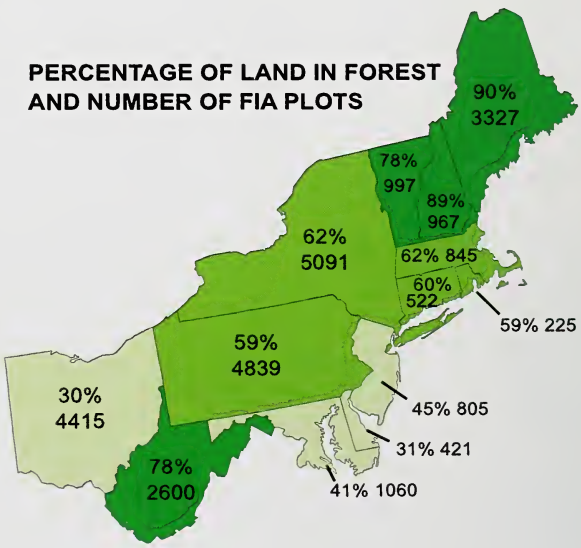
PREPARED BY
Forest Service - F I A
Newtown Square, PA

Northeastern
Research Station
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Introduction

Whether you're interested in wildlife habitat, forest resource sustainability, or need to estimate the uptake of carbon dioxide by forests, good data underlies your analysis and decisionmaking process. The United States Congress realized more than 100 years ago that there was a lack of basic information about the Nation's forests. In response to that need, the Organic Act was passed in 1928 that initiated an inventory of the Nation's forest resources. Subsequent legislation has expanded that inventory and reporting process to the current Forest Inventory and Analysis (FIA) program described in this brochure.

Today FIA is a national program of the USDA Forest Service. In cooperation with state forestry agencies, it conducts and maintains comprehensive inventories of the forest resources across all lands in the United States. Inventories are carried out through five regional FIA units. The FIA unit at the Northeastern Research Station has a proud 50-year history of inventorying the 13 states that make up the Northeastern region. Each state has been inventoried at least four times.



Why is FIA Important?

FIA provides objective and scientifically credible information on key forest ecosystem processes: how much forest there is, whether forest land area is increasing or decreasing, how species composition is changing, and how quickly trees are growing, dying, and being harvested. Such information has many important uses including:

- Helping federal and state policy makers formulate sound forest policy, and to assess the sustainability of current and past policies.
- Enabling land managers to devise better management plans and to assess the effects of current and past management practices on the land.
- Serving as a starting point for scientific investigations in a variety of areas which involve changes in forest ecosystems over time.
- Keeping the public informed about the health and sustainability of the Nation's forests.
- Addressing resource issues such as urbanization, forest fragmentation, invasive species, wildfire risk, global climate change, and water quality.



Enhanced FIA Program

In 1998, the Forest Service significantly improved the FIA program by implementing a plan to continuously measure ground plots in every state every year. Under this approach, one seventh of the plots are measured annually with all plots measured after 7 years. Individual states have the option to provide additional funds to reduce the inventory cycle from the federally funded 7 years to 5 years. As of 2003, three states in the Northeast have chosen to do this. After the completion of a cycle, remeasurement of the first year's plots begins again. Because of the design of the inventory, annual estimates can be made, but the best results will come from combining all the plots covered by a complete cycle. Congress has required that results be reported on a 5-year schedule. Concurrent with the change to annual inventories, we began to assess forest health by incorporating plots from the National Forest Health Monitoring Program into FIA.

How the Inventory is Conducted

The FIA employees do not count every tree in the forest. Instead, a scientifically designed sampling method is used.

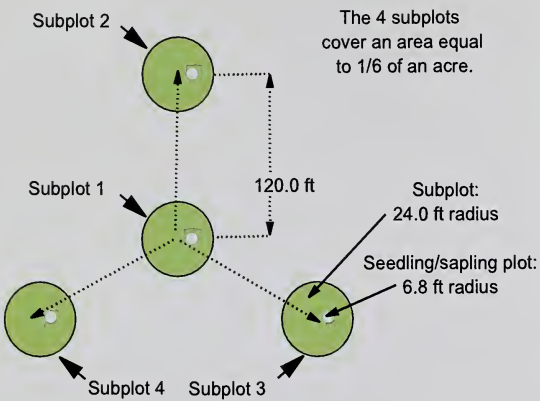
Data are collected in three phases, with each phase taking a more detailed look at the



forest. Phase 1 uses satellite imagery to classify the entire land area of a state into forest and nonforest categories. These estimates are used to statistically expand the data collected in Phase 2. Phase 2 is a network of ground plots that are visited by specially trained field crews. These plots are located on a grid space about 3 miles apart across the entire United States. Because it is important to locate these plots again for future measurement a description of

the plot location is documented. One out of every 16 Phase 2 plots are selected to collect additional Forest Health data. These plots are called Phase 3 plots, and are measured during the summer.

P2 & P3 Plot Design



On all our field plots, we gather quantitative and qualitative measurements that describe:

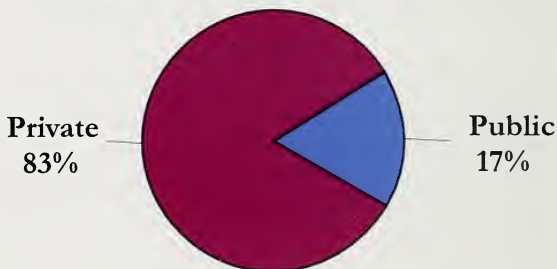
- Land use.
- Tree species, diameter, height, damage, amount of rotten or missing wood, and tree quality.
- Stand characteristics, such as forest type, stand age, and disturbance.
- Estimates of regeneration, growth, mortality, and removals (determined by revisiting plots).

On Phase 3 plots, we collect additional information. These measures include indicators of how the forest ecosystem is functioning—its condition and health. Measurements collected on these plots can include the following:

- **Crown condition** – measures the amount and distribution of foliage, and condition of growing tips of trees.
- **Soil condition** – collects data on erosion, soil compaction, and important physical and chemical soil properties.
- **Vegetation diversity and structure** – measures the abundance of all plant species including exotic and introduced species.
- **Down woody debris** – measures the amount and size of woody debris on the forest floor. This is used to estimate biomass, wildlife habitat, fuel loading and fire spread, and soil stabilization.
- **Lichen communities** – measures lichen diversity and abundance. Because lichens are responsive to environmental stresses, they are useful indicators of air pollution and climate change.
- **Ozone injury** – exposure of forests to ozone (a gas that stresses trees) is assessed by monitoring indicator species that are sensitive to ozone.
- **Tree damage** – measures tree injury caused by diseases, insects, storms, fires, and various human activities.

The majority of plots fall on private land because most land in the northeastern United States is privately held.

Ownership of the 93 Million Acres of Forest Land in the Northeastern United States



Other FIA Studies Currently Under Way at the Northeastern Research Station


- A woodland owner survey to determine what objectives woodland owners have for owning land, what management practices are being used, and what the owner's future intentions are for the forest property.
- Logging utilization studies to determine the relationship between the volume of trees estimated on Phase 2 plots and the volume of these trees that actually would be utilized as merchantable products if they were harvested.
- Timber product output studies to monitor the quantity and species of trees being used by primary wood-using industries (sawmills, pulpmills, and veneer mills).

National Forest Inventory and Analysis Spatial Data Services

FIA has always had a policy of not releasing exact locations for FIA plots, both to protect the privacy of landowners who grant us access to their lands, as well as to protect the long-term integrity of the plots. Recently, Congress incorporated this policy into law by adding FIA data to a list of items requiring confidential treatment.

FIA remains committed to enabling our customers to achieve their analytical objectives in ways that are consistent with the law. One of the ways we are doing this is by providing services to spatial data customers. FIA National Spatial Data Services was created to facilitate access to FIA data without compromising the security of the plot locations or landowner privacy. The Spatial Data Services' staff connects geospatial data submitted by interested parties to the information collected by FIA.

To learn more about the Spatial Data Services, including how to make requests, please visit the National FIA Spatial Data Services' website at www.fs.fed.us/ne/fia/spatial/index_ss.html.



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More Information on FIA

For more information about FIA, or to request forest resource information about forests in the Northeast, please contact us at:

USDA Forest Service
Forest Inventory and Analysis Program
11 Campus Boulevard, Suite 200
Newtown Square, PA 19073-3200

Telephone (610) 557-4075

Or visit our Northeastern FIA Website at:
<http://www.fs.fed.us/ne/fia>

You may also visit our national Forest Inventory and Analysis Website at:
<http://www.fia.fs.fed.us>

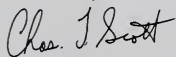
Message to Landowners with an FIA Sample Plot on Their Land

Dear Landowner:

A sample plot for the new forest inventory is located on your land. The plot is part of a sampling design that uses a combination of satellite imagery and ground plots to make estimates about the forest resource in this state. A field crew (usually two people from the USDA Forest Service) would like your permission to measure the plot. Crews take measurements of trees and other forest attributes on about a sixth of an acre. Because of the small sample area of a plot, a single plot cannot be used to say much about an individual's forest land. Plots need to be combined with many other plots to make meaningful estimates. Nevertheless, **by law, the location and the owner's name of all plots will be kept confidential and data will only be presented in statistical summaries. Information from a single owner's land will not be used for tax purposes, nor will it be used in regulation.** Because plots will be measured again, we ask that you not treat plot areas any differently than any other land you own. Therefore, plots are not obviously marked and in most cases you could be standing on a plot and not know it.

We promise to treat your land with care, respect your rights as a private landowner, and accept the responsibility for the safety and welfare of our employees while on your property. Included in this brochure is information describing the USDA Forest Service Forest Inventory and Analysis program. If you have any questions or need more information, please call or write us. Your cooperation is greatly appreciated. It will help keep our costs down and increase the overall quality of the inventory results.

Sincerely,



Charles Scott
Program Manager
Forest Inventory and Analysis

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